

**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

**LISTING OF CLAIMS:**

1. (currently amended): An ink jet type recording apparatus comprising:  
a cartridge holder capable of removably attaching an ink cartridge;  
a recording head for receiving a supply of ink from the ink cartridge attached to the cartridge holder and discharging ink droplets based on print control data, thereby printing an image on a recording medium[, wherein:]; and  
a control circuit,  
wherein, in case in which the ink cartridge is attached to the cartridge holder, [it is decided] the control circuit decides whether or not an ink type information to be used in the recording apparatus has already been set, and  
wherein, in case in which [it is decided that] the ink type information has not yet been set, the control circuit sets the ink type information [is set] so that type of ink accommodated in the attached ink cartridge can be used.
2. (original): The ink jet type recording apparatus according to claim 1, wherein the ink cartridge to be used in the recording apparatus includes an identifying system indicative of the type of ink accommodated in the ink cartridge, and the recording apparatus to which the ink

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cartridge is to be attached includes an information obtaining system capable of obtaining ink type information from the identifying system.

3. (original): The ink jet type recording apparatus according to claim 2, wherein the ink cartridge includes a semiconductor storage system, storing information indicative of the ink type, as the identifying system, and the recording apparatus, to which the ink cartridge is to be attached, includes, as the information obtaining system, an information reading system capable of reading the ink type information from the semiconductor storage system.

4. (previously presented): The ink jet type recording apparatus according to any of claims 1 to 3, further comprising:

a matching deciding system for deciding whether or not a matching is available between the ink type information that has been set and ink type information obtained from a newly attached ink cartridge in a case in which the ink type information has already been set,

wherein operation of the recording apparatus is inhibited if the matching deciding system decides that the matching is unavailable.

5. (previously presented): The ink jet type recording apparatus according to any of claims 1 to 3, further comprising:

a matching deciding system for deciding whether or not a matching is available between ink type information that has been set and ink type information obtained from a newly attached ink cartridge in case in which the ink type information has already been set,

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wherein an alarm is activated if the matching deciding system decides that the matching is unavailable.

6. (previously presented): The ink jet type recording apparatus according to any of claims 1 to 3, wherein an operation sequence is set for the recording apparatus corresponding to the ink type information that has been set.

7. (previously presented): The ink jet type recording apparatus according to any of claims 1 to 3, wherein a driving condition is set for a recording head corresponding to the ink type information that has been set.

8. (previously presented): The ink jet type recording apparatus according to any of claims 1 to 3, wherein an image processing method is set corresponding to the ink type information that has been set.

9. (original): The ink jet type recording apparatus according to any of claims 1 to 3, wherein only when the recording apparatus obtains ink type setting permission information from the ink cartridge attached to the recording apparatus, the ink type information is set.

10. (original): The ink jet type recording apparatus according to claim 9, wherein the ink type setting permission information is stored in the semiconductor storage system mounted on the ink cartridge, and the ink type setting permission information is inhibited from being read

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from the semiconductor storage system or is erased from the semiconductor storage system in response to a command sent from the recording apparatus after the recording apparatus once reads the ink type setting permission information.

11. (original): A method of setting ink type information in an ink jet type recording apparatus comprising a cartridge holder capable of removably attaching ink cartridges and a recording head for receiving supply of ink from the ink cartridges attached to the cartridge holder and discharging ink droplets based on print control data, thereby printing an image on a recording medium, comprising:

an ink type information obtaining step of obtaining ink type information from each of the ink cartridges attached to the cartridge holder;

an ink type information comparing step of deciding whether or not all the ink type information obtained at the ink type information acquiring step are identical;

a setting ascertaining step of ascertaining whether or not ink type information about ink to be used in the recording apparatus has already been set; and

an ink type information setting step of setting ink corresponding to the obtained ink type information as ink that can be used in the recording apparatus, if it is decided that the ink type information has not yet set at the setting ascertaining step and it is decided that all the ink type information sent from the ink cartridges are identical at the ink type information comparing step.

12. (original): The method of setting ink type information in an ink jet type recording apparatus according to claim 11, wherein an attachment state deciding step of deciding whether

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or not all the ink cartridges are attached to the cartridge holder is executed before execution of the ink type information obtaining step, and the ink type information obtaining step is executed if it is decided that all the ink cartridges are attached at the attachment state deciding step.

13. (original): The method of setting ink type information in an ink jet type recording apparatus according to claim 11 or 12, wherein the ink type information setting step is executed only when it is decided that the ink type has not yet set at the setting ascertaining step and ink type setting permission information is obtained from the attached ink cartridge.

14-17. (Canceled).

18. (previously presented): A recording apparatus comprising:  
an ink cartridge holder adapted to removably attach ink cartridges thereto to communicate with the ink cartridges for data transfer to and from the ink cartridges;  
a recording head mounted on the ink cartridge holder;  
a CPU operatively connected to the recording head and communicating with the holder;  
a printer memory that stores therein an operation sequence condition, a recording head driving condition and an image processing condition, each being stored by an ink type basis, the printer memory having a memory area into which a specific one of ink types, to be used in the recording apparatus can be written, and the printer memory storing therein a program to be executed for writing the specific ink type when all of the ink cartridges contain ink of the same ink type and when the specific one of ink types has not yet been written in the printer memory,

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and for selecting the operation sequence condition, recording head driving condition and image processing condition corresponding to the specific ink type.

19. (previously presented): An ink cartridge comprising:

an ink container containing ink therein;

an ink cartridge memory storing therein ink type information indicative of a type of the ink, and ink type setting permission information specifying that the ink cartridge is an ink cartridge for set up, wherein the ink type setting permission information is written in a memory area of the ink cartridge memory, from which the ink type setting permission information is inhibited from being read again or is erased once the ink type setting permission information is read and the ink cartridge is used as the set-up ink cartridge.

20. (previously presented): A memory medium storing therein a program having instructions to be executed for performing a method, the method comprising:

writing a specific ink type into a memory area of a printer memory when all ink cartridges attached to a printer contain ink of the same ink type and when the specific ink type has not yet been written in the memory area of the printer memory, and

selecting an operation sequence condition, a recording head driving condition and an image processing condition corresponding to the specific ink type.

21. (new): The apparatus as claimed in claim 1, wherein the ink type information indicates whether at least one of pigment ink and dye ink is to be used in the recording apparatus.

22. (new): A recording apparatus, comprising:

a cartridge holder capable of removably attaching an ink cartridge, wherein the ink cartridge comprises an identifying system that indicates a type of ink contained in the ink cartridge;

a recording head that receives ink from the ink cartridge and discharges ink droplets;

a control circuit that obtains, from the identifying system, ink type information about the type of ink contained in the ink cartridge when the ink cartridge is attached to the cartridge holder; and

an ink type memory that is capable of storing specific ink type information about a type of ink to be used in the recording apparatus,

wherein, when the ink cartridge is attached to the cartridge holder, the control circuit determines whether or not the specific ink type information has already been stored in the ink type memory by analyzing the ink type memory and the identifying system, and

wherein, when the specific ink type information has not yet been stored in the ink type memory, the control circuit stores the ink type information obtained from the identifying system as the specific ink type information in the ink type memory.

23. (new): The recording apparatus according to claim 22, wherein the identifying system comprises a semiconductor memory that stores the ink type information, and

wherein the control circuit comprises an information reading circuit that is capable of reading the ink type information from the semiconductor memory.

24. (new): The recording apparatus according to claim 22 or 23, wherein the control circuit stores matching information that indicates whether or not the obtained ink type information matches the specific ink type information, and

wherein, when the specific ink type information has already been stored in the ink type memory, the control circuit determines whether or not the stored specific ink type information matches the obtained ink type information based on the matching information.

25. (new): The recording apparatus according to claim 24, wherein, when the stored specific ink type information does not match the obtained ink type information, the control circuit outputs an operation inhibiting command to inhibit an operation of the recording apparatus.

26. (new): The recording apparatus according to claim 24, wherein, when the stored specific ink type information does not match the obtained ink type information, the control circuit outputs a signal to activate at least one of a visual alarm and an aural alarm.

27. (new): The recording apparatus according to claim 22 or 23, wherein the control circuit sets an operation sequence for the recording apparatus based on the specific ink type information.



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28. (new): The recording apparatus according to claim 22 or 23, wherein the control circuit sets a driving condition for the recording head based on the specific ink type information.

29. (new): The recording apparatus according to claim 22 or 23, wherein the control circuit sets an image processing method based on the specific ink type information.

30. (new): The recording apparatus according to claim 23, wherein the semiconductor memory stores ink type setting permission information, and wherein the control circuit does not store the obtained ink type information as the specific ink type information in the ink type memory unless the control circuit obtains the ink type setting permission information from the semiconductor memory via the information reading circuit.

31. (new): The recording apparatus according to claim 30, wherein the control circuit comprises an information writing circuit,

wherein, after the control circuit reads the ink type setting permission information a predetermined number of times, the control circuit instructs the information writing circuit to at least one of (1) write information to the semiconductor memory to prevent the ink type setting permission information from being read from the semiconductor memory and (2) erase the ink type setting permission from the semiconductor memory.

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32. (new): The recording apparatus according to claim 22, wherein the identifying system comprises a plurality of recessed and/or protruded portions in a portion of a casing of the ink cartridge, and

wherein the control circuit determines the ink type information based on a configuration of the recessed and/or protruded portions.

33. (new): The recording apparatus according to claim 22, wherein the identifying system comprises a bar code in a portion of a casing of the ink cartridge, and wherein the control circuit determines the ink type information by reading the bar code.

34. (new): A method of setting ink type information in a recording apparatus, comprising:

(a) obtaining ink type information from each of ink cartridges attached to a cartridge holder of the recording apparatus based on an identifying system of each of the ink cartridges;

(b) determining whether or not all the obtained ink type information are identical;

(c) determining whether or not specific ink type information about ink to be used in the recording apparatus has already been set; and

(d) using the obtained ink type information as the specific ink type information after determining that the specific ink type information has not yet been set.

35. (new): The method according to claim 34, wherein operation (d) comprises:

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(d1) using the obtained ink type information as the specific ink type information only after determining that the specific ink type information has not yet been set and only after determining that all the obtained ink type information are identical.

36. (new): The method according to claim 34, wherein operation (a) comprises:

(a1) determining whether or not all of the ink cartridges are attached to the cartridge holder; and

(a2) obtaining the ink type information from each of ink cartridges based on the identifying system when all of the ink cartridges are attached to the cartridge holder.

37. (new): The method according to claim 34, wherein operation (d) comprises:

(d1) obtaining ink type setting permission information from at least one of the attached ink cartridges;

(d2) determining whether or not the ink type setting permission information indicates that using ink type information, from at least one of the attached ink cartridges, as the specific ink type information is permitted; and

(d3) using the obtained ink type information as the specific ink type information only after determining that the specific ink type information has not yet been set and after determining that the obtained ink type information is permitted to be used as the specific ink type information.

38. (new): The method according to claim 35, wherein operation (d1) comprises:

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(d1a) obtaining ink type setting permission information from at least one of the attached ink cartridges;

(d1b) determining whether or not the ink type setting permission information indicates that using ink type information, from at least one of the attached ink cartridges, as the specific ink type information is permitted; and

(d1c) using the obtained ink type information as the specific ink type information only after determining that the specific ink type information has not yet been set and after determining that the obtained ink type information is permitted to be used as the specific ink type information.

39. (new): The method according to claim 36, wherein operation (d) comprises:

(d1) obtaining ink type setting permission information from at least one of the attached ink cartridges;

(d2) determining whether or not the ink type setting permission information indicates that using ink type information, from at least one of the attached ink cartridges, as the specific ink type information is permitted; and

(d3) using the obtained ink type information as the specific ink type information only after determining that the specific ink type information has not yet been set and after determining that the obtained ink type information is permitted to be used as the specific ink type information.

40. (new): An ink cartridge which is attachable to a recording apparatus, comprising:

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an ink container that contains ink;

an indicating system that indicates (1) ink type information indicative of a type of the ink contained in the ink container and (2) ink type setting permission information that indicates whether or not the recording apparatus is permitted to utilize the ink type information to set the ink type for the recording apparatus; and

a communication system that conveys the ink type information and the ink type setting permission information to the recording apparatus when the ink cartridge is attached to the recording apparatus,

wherein the recording apparatus does not use the ink type information to set the ink type for the recording apparatus unless the ink type setting permission information permits the recording apparatus to utilize the ink type information to set the ink type.

41. (new): The ink cartridge according to claim 40, wherein the indicating system comprises a semiconductor memory that is mounted on the ink container and that stores the ink type information and the ink type setting permission information in electronic form.

42. (new): The ink cartridge according to claim 41, wherein the ink type setting permission information is stored in the semiconductor memory such that the ink type setting permission information cannot be reread or such that the ink type setting permission information can be erased upon receipt of a command from the recording apparatus.

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43. (new): The ink cartridge according to claim 40, wherein the indicating system comprises a plurality of recessed and/or protruded portions in a portion of the ink container, and wherein a configuration of the recessed and/or protruded portions indicates the ink type information.

44. (new): The ink cartridge according to claim 40, wherein the indicating system comprises a bar code in a portion of the ink container, and wherein the bar code indicates the ink type information.

45. (new): The ink cartridge according to any of claims 40 to 44, wherein the ink cartridge including the ink type setting permission information has such a configuration as to be packed and shipped together with the recording apparatus.

46. (new): A recording apparatus, comprising:  
an ink cartridge holder adapted to removably attach ink cartridges, wherein the ink cartridges respectively have ink cartridge memories that store ink type information indicative of types of ink respectively contained in the ink cartridges;  
a communication system that transfers data to and from each of the ink cartridge memories;  
a recording head;  
a control circuit that communicates with the recording head and the communication system;

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a printer memory that communicates with the control circuit,  
wherein the printer memory stores operation sequence conditions respectively  
corresponding to a plurality of ink types, stores recording head driving conditions respectively  
corresponding to the plurality of ink types, and stores image processing conditions respectively  
corresponding to the plurality of ink types,  
wherein the printer memory stores specific ink type information corresponding to one of  
the plurality of ink types, and  
wherein the printer memory stores a program,  
wherein the control circuit reads the program from the printer memory and executes the  
program to:

decide whether the ink type information obtained from all of the ink cartridge  
memories via the communication system are identical;  
decide, by referring to the printer memory, whether the specific ink type  
information has been already stored in the printer memory;  
store the obtained ink type information as the specific ink type information in the  
printer memory if the obtained ink type information are identical and if the specific ink  
type information has not yet been stored in the printer memory; and  
select, from the printer memory, one of the operation sequence conditions, one of  
the recording head driving conditions, and one of the image processing conditions based  
on the stored specific ink type information.

47. (new): An ink cartridge, comprising:

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an ink container containing ink;  
an ink cartridge memory that stores ink type information indicative of a type of the ink  
and that stores ink type setting permission information that specifies that the ink cartridge  
constitutes an ink cartridge for set up,

wherein the ink type setting permission information is written in the ink cartridge  
memory such that the ink type setting permission information is prevented from being read again  
from the ink cartridge memory or is erased from the ink cartridge memory once the ink type  
setting permission information is read and the ink cartridge and is used as the ink cartridge for  
set up; and

a communication system by which a recording apparatus can access the ink cartridge  
memory.

48. (new): A memory system, comprising:

ink cartridge memories that respectively store ink type information indicative of types of  
ink respectively contained in ink cartridges;

a printer memory that stores a program that selects an operation sequence condition, a  
recording head driving condition, and an image processing condition corresponding to the ink  
type information contained in at least one of the ink cartridge memories,

wherein, when the ink cartridges are attached to an ink cartridge holder, a control circuit  
reads the program from the printer memory and executes the program to:

decide whether the ink type information obtained from all of the ink cartridge  
memories are identical;



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decide, by referring to the printer memory, whether specific ink type information has been already stored in the printer memory;

store the obtained ink type information as the specific ink type information in the printer memory if the obtained ink type information are identical and if the specific ink type information has not yet been stored in the printer memory; and

select, from the printer memory, the operation sequence condition, the recording head driving condition, and the image processing condition based on the specific ink type information.